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T-785 P.001/008 F-360

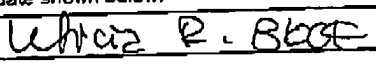
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TRANSMITTAL FORM <small>(to be used for all correspondence after initial filing)</small>	Application Number	10/648,819	
	Filing Date	August 25, 2003	
	First Named Inventor	Peter Fierowsky et al	
	Art Unit	2857	
	Examiner Name	Edward Raymond	
Total Number of Pages In This Submission	8	Attorney Docket Number	3057.1B

ENCLOSURES (check all that apply)		
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<div style="border: 1px solid black; padding: 5px;"> Remarks </div>		

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT			
Firm	Affymetrix, Inc.		
Signature			
Printed Name	Philip L. McGarrigle		
Date	Dec. 23, 2004	Reg. No.	31,395

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File No.
3057.1B

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

PETER FIEROWSKY et al

Serial No. 10/648,819

Filed: August 25, 2003

For: SCANNED IMAGE ALIGNMENT
SYSTEMS AND METHODS

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) Examiner: Edward Raymond
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) Art Unit: 2857
)
)
)
) Corrections of
) Typographical Errors in
) Prior Request for
) Declaration Of Interference
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REMARKS

Sir:

Applicant's representative, Philip L. McGarrigle, met with Examiner Edward Raymond in a face-to-face interview on December 8, 2004 to discuss a potential interference. During that interview, Mr. McGarrigle and Examiner Raymond encountered two types of typographical errors in the Request for Declaration of Interference for the present application. Applicants are submitting this response to clarify those two mistakes.

The first type of mistake is located on pages 3 and 4. The request states "Applicants' claim 46" and "Applicants' claim 46 reads as follows...." These lines should be amended to "Applicants' claim 59" and "Applicants' claim 59 reads as follows..." respectively.

The second type of mistake is located in the chart beginning on page 27 of the Request for Declaration of Interference. The third column of the chart links the support for claim 64 to the disclosure having a priority date of February 10, 1994. Applicants used column and line numbers; however, these numbers were taken from U.S. Pat. No. 6,141,096, not the page and line numbers of the originally filed application. (U.S. Pat. No. 6,141,096 is a continuation of the first priority document, U.S. Serial Number 08/195,889). The following chart identifies where in the priority document the references in the Request for Declaration can be found. The citations are in the order shown in the chart.

<u>Language in Current Request</u>	<u>Support in Originally Filed Application</u>
(Citation to '096 patent)	<u>USSN 08/195,889</u>
Col. 15, Lines 5-16	Page 26, Lines 22-32
Col. 14, Lines 43-50	Page 25, Lines 29-37
Col. 15, Lines 17-35	Page 26, Lines 33-38, Page 27, Lines 1-13
Col. 15, Lines 36-42	Page 27, Lines 14-20
Col. 15, Lines 53-59	Page 27, Lines 31-37

The following chart shows the amended Claim 64 table with the corrected support in U.S. Serial Number 08/195,889 underlined.

<i>Claim 64 Independent</i>	<i>Application Disclosure</i>	<i>Disclosure of Application with Feb. 1994 priority date</i>
A method for evaluating an orientation of a molecular array having features arranged in a pattern, the method comprising:	Page 4, lines 16-19: "In another embodiment, the invention provides a method of aligning scanned images of chips with hybridized nucleic acid sequences. A chip having attached nucleic acid sequences (probes) is synthesized, with the chip including a first pattern of nucleic acid sequences"	Figs. 6A and 6B. See <u>page 26, lines 22-32</u> . "Referring to FIGS. 6a and 6b ¹ , the system is initialized by requesting the user to enter the name of an image file of interest. At step 601, the system retrieves the image file and prompts the user to enter the four corners of the image at step 602. Next, at steps 603 and 604, the system prompts the user for the number of cells located horizontally and vertically on the substrate. From the information entered by the user and the image file, the system creates a computer representation of a histogram for each cell at step 605. The histogram (at least in the form of a computer file) plots the number of pixels versus intensity.

¹ The Request quotes "Referring to FIGS 6a and 6b" which was the language taken from the patent but the originally filed application said "Referring to FIG. 6." The difference arose during prosecution.

<p>(a) receiving an image of the molecular array produced by scanning the molecular array to determine data signals emanating from discrete positions on a surface of the molecular array;</p>	<p>Page 11, lines 20-21: "The image file is provided as input to analysis system 126 that incorporates the scanned image alignment techniques of the present invention"</p> <p>Page 11, lines 12-15: "The output of scanner 120 is an image file(s) indicating, in the case of fluorescein labeled target, the fluorescence intensity (photon counts or other related measurements, such as voltage) as a function of position on the substrate"</p>	<p>Much of the application discusses scanning. Figs 1 A-C shows scanners. Figs. 2, 3A and B, 4 A-C and 5 show the method for generating, receiving and analyzing data from an array.</p> <p><u>See page 25, lines 29-37</u></p> <p>"Upon completion of the conversion process, an image file representing fluorescence intensity is created and stored in memory at step 507. At step 508, the system may optionally display the image file. The intensity level of the displayed image varies from region to region according to the binding affinity of the targets to the polymer sequence therein. The brightest signals typically represent the greatest binding affinity while signals of lesser intensity represent lesser degrees of binding affinity."</p> <p><u>See page 26, lines 33-38</u> <u>page 27, and lines 1-13.</u></p> <p>For example, "At step 606, the main data analysis loop is performed for each synthesis site. Analyzing the histogram for the respective synthesis site, the system calculates the total intensity level and</p>
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		number of pixels for the bandwidth centered around varying intensity levels."
(b) calculating an actual result of a function on pixels of the image lying in a second pattern;	<p>(Yakhini describes the second pattern in col. 3, lines 53 - 57: "the second pattern may be a rectilinear grid of rows and columns which would lie on the rows and columns of the rectilinear grid of the array when the second pattern and the array are superimposed"</p> <p>Thus,</p> <p>Page 20, line 17: "pixel intensities on grid lines in the grid are summed", where the summing of pixel intensities is a calculation of an actual result of a function on pixels on the image that lie in the grid lines in the grid pattern.</p>	<p>See page 27, lines 14-20. "At step 610, an image in the form of a grid representing the substrate is displayed. Each block in the grid represents a region synthesized with a polymer sequence. The image intensity of each region will vary according to the binding affinity between the polymer sequence and targets therein. Statistical data, such as the peak and average intensity corresponding to each region are also displayed."</p>
(c) comparing the result of step (b) with an expected result which would be obtained if the second pattern had a predetermined orientation on the array, and	<p>Page 20, line 25 - Page 21, line 1: "Once all the positions of the grid have been analyzed, the system selects a grid position where pixel intensities (e.g. the sum calculated at step 551) are at a minimum.</p> <p>The system compares the summation results with an expectation of finding the lowest value, where the position of the lowest value corresponds to proper grid placement where features are not present that is predetermined to be the proper placement.</p>	<p>See page 27, lines 31-37. "At step 612, the system retrieves the file created during the synthesis process of the substrate being analyzed. The synthesis file contains sequence information as a function of location. The system integrates the synthesis file with the image file and sorts the data therein. Through this process, the molecular sequence of complementary probes and the intensity as a function of location is available."</p>
(d) when the results of the comparison in step (c) are outside a predetermined	Page 21, lines 1-2: "Therefore, if the pixel intensities for grid lines are lower at another	See Figs 6A and B. Steps 601 to 605 create a grid of the image data. Step

<p>difference, then altering the orientation of the second pattern on the array and repeating steps (b) and (c), and repeating the foregoing as needed until the results of the comparison are within the predetermined difference.</p>	<p>position, the grids is adjusted accordingly”</p> <p>Figure 13, elements 551, 553, 555, and Page 20, lines 22-25 illustrate the repetition of step (b): “Then, at a step 553, the system may determine if there are more positions of the grid to analyze. If there are, the position of the grid may be adjusted at a step 555. Therefore, the grid may be moved left or right by one or more pixels before the intensities are summed along the grid lines at step 551”. In other words, the grid is repositioned for a number of iterations and the summation is performed at each iteration.</p> <p>Also, same process repeated (c) for horizontal direction (Page 21, see claim 2 description)</p>	<p>609 indicates that the method is repeated for all four corners. The expected grid (synthesis areas) is compared with the actual image in steps in 610 and 612. The image is reformatted in Step 616 and 614 and when it is matched, then displayed to the user. Also, the entire purpose for creating a grid and comparing it to the actual results is to adjust any distortion in the actual results from the image file.</p>
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CONCLUSION

Applicants do not believe a fee is required but if the Applicants are mistaken, the Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account 01-0431.

Respectfully submitted,

Date: Dec. 23, 2004

By Philip McGarrigle

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